Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

A 280.29
F 226
cop. 3

LIBRARY
CURRENT SERIAL RECORD
★ AUG 4 - 1959 ★
U. S. DEPARTMENT OF AGRICULTURE

COOPERATIVE COUNTRY ELEVATORS IN MONTANA

by Francis P. Yager

General Report 64

July 1959

Farmer Cooperative Service U. S. Department of Agriculture

FARMER COOPERATIVE SERVICE
U. S. DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

Joseph G. Knapp, Administrator

The Farmer Cooperative Service conducts research studies and service activities of assistance to farmers in connection with cooperatives engaged in marketing farm products, purchasing farm supplies, and supplying business services. The work of the Service relates to problems of management, organization, policies, merchandising, product quality, costs, efficiency, financing, and membership.

The Service publishes the results of such studies; confers and advises with officials of farmer cooperatives; and works with educational agencies, cooperatives, and others in the dissemination of information relating to cooperative principles and practices.

This study was conducted under authority of the Agricultural Marketing Act of 1946 (RMA, Title II).

Contents

Page

Highlights ---------- i

Role of grain production ---------- 1

Characteristics of country elevators ---------- 4
  Location ---------- 4
  Type of ownership ---------- 4
  Type of structure ---------- 5
  Facilities ---------- 6

Grain receipts ---------- 8
  Marketing period ---------- 8
  Transportation used ---------- 10

Grain storage ---------- 12
  How much capacity? ---------- 13
  Conditions affecting storage ---------- 13
  Advantage of commercial storage ---------- 13
  Length of storage ---------- 15
  Turnover ---------- 15
  Rates paid ---------- 15
  Shrinkage ---------- 16

Government loan programs ---------- 16

Elevator services ---------- 16
  Grain services ---------- 16
  Sidelines ---------- 17

Employees ---------- 18
  Managers ---------- 19
  Salaries ---------- 20

Highlights

This report is based on a survey Farmer Cooperative Service made of 48 cooperative country elevators in Montana. It includes 1956-57 operating data on these elevators.

Major findings from the study were as follows:

- Many country elevators had built additional storage facilities, utilizing the old elevator in the unloading and loading out operations. This arrangement was often inefficient.

- Several cooperatives owned low-capacity elevators scattered throughout the production area, and this increased their operating costs.

- Commercial storage capacity had increased approximately 32 percent since 1954 and on-the-farm storage 6 percent. Wooden cribbed elevators were still being built in Montana. However, there was a trend toward concrete and steel.

- Storage income represented an important source of income to many Montana country elevators. Grain storage charges are regulated by the State of Montana.

- Farmers' increased use of combines and trucks and additional miles of improved roads were placing a burden upon the elevators to receive large quantities of grain at the same time during a short harvest season.

- Approximately 97 percent of the grain purchased was shipped by rail. Most of it went to terminal or other elevators within a week after purchase.

- Many farmers had built on-the-farm storage because of the limited storage capacity of elevators, depressed prices at harvest time, and U. S. Government loan programs. Many farmers held their grain in storage until January and February before selling to the local country elevator.

- Many country elevators had added sidelines to develop a business that utilized facilities and labor the year round.

Cooperative Country Elevators In Montana

by Francis P. Yager

Grain Branch
Marketing Division

The towering grain elevators of the Great Plains are familiar landmarks to the farmer and the traveler. These elevators serve as a place to store the farmers' grain and as a source of supply for processors and millers.

In Montana, the principal function of country elevators is to buy and store grain. Here the farmer can find a ready cash grain market throughout the year. In addition, many of these elevators offer a variety of sidelines.

This study is based on a survey--made in the summer of 1957--of 48 cooperative country elevators in Montana. It includes information for the year beginning in June 1956 and running through May 1957 on kind of elevator, type of structure, grain receipts and sales, storage capacity, turnover, transportation used, sidelines, and employees.

Information gathered on storage problems, operating techniques, services, and costs will aid others in the grain trade in planning new elevator facilities. Although this survey was limited to cooperative elevators, the information gathered here and in the case studies will be valuable to all country elevators in Montana.

Information from this survey will be used as a guide in selecting certain elevators for further intensive study.

Role of Grain Production

Grain production in Montana has increased in importance since 1940. Production in 1940 was about 56.7 million bushels of wheat, barley, and flaxseed, compared to almost 117.2 million bushels in 1956. This was an increase of 107 percent in 17 years.

In 1958, Montana produced 150 million bushels of wheat, barley, and flaxseed, an increase of 28 percent over 1956 production and 165 percent since 1940.

Montana ranked second in durum and barley, third in all wheat,[1] and fifth in the production of flaxseed in the United

---

[1] All wheat includes durum, spring, and winter wheat.

The author expresses appreciation to the cooperative elevators of Montana, which furnished basic data for this study; Harold W. Brown, fieldman for Farmers Union Grain Terminal Association; Edward Hanson, graduate student at Montana State College; and the Endowment and Research Foundation at Montana State College for their help.

Grain elevators are familiar landmarks to the traveler and the farmer.

States in 1956. Wheat occupied approximately 56 percent of the harvested acreage in 1956, making it the State's most important single agricultural crop.

In 1958, durum and barley ranked third, all wheat fifth, and flaxseed sixth.

Production and livestock enterprises carried on by the farmer influence the percentage of grain sold each year compared to that fed or used as seed.

Percentages of flax and wheat sold are less variable than that of barley. Very small amounts of wheat and flax are fed on the farm where grown. The quantities used as seed remain relatively constant from year to year. Therefore, as production varies and the quantity used for seed remains comparatively stable, variation shows up largely in quantities and percent of production offered for sale by the farmer. From 1940 through 1957, the percentage of barley and wheat sold off Montana farms increased (figure 1).

More than 105 million bushels, or 90 percent of the wheat, barley, durum, and flaxseed were sold off the farm in 1956.

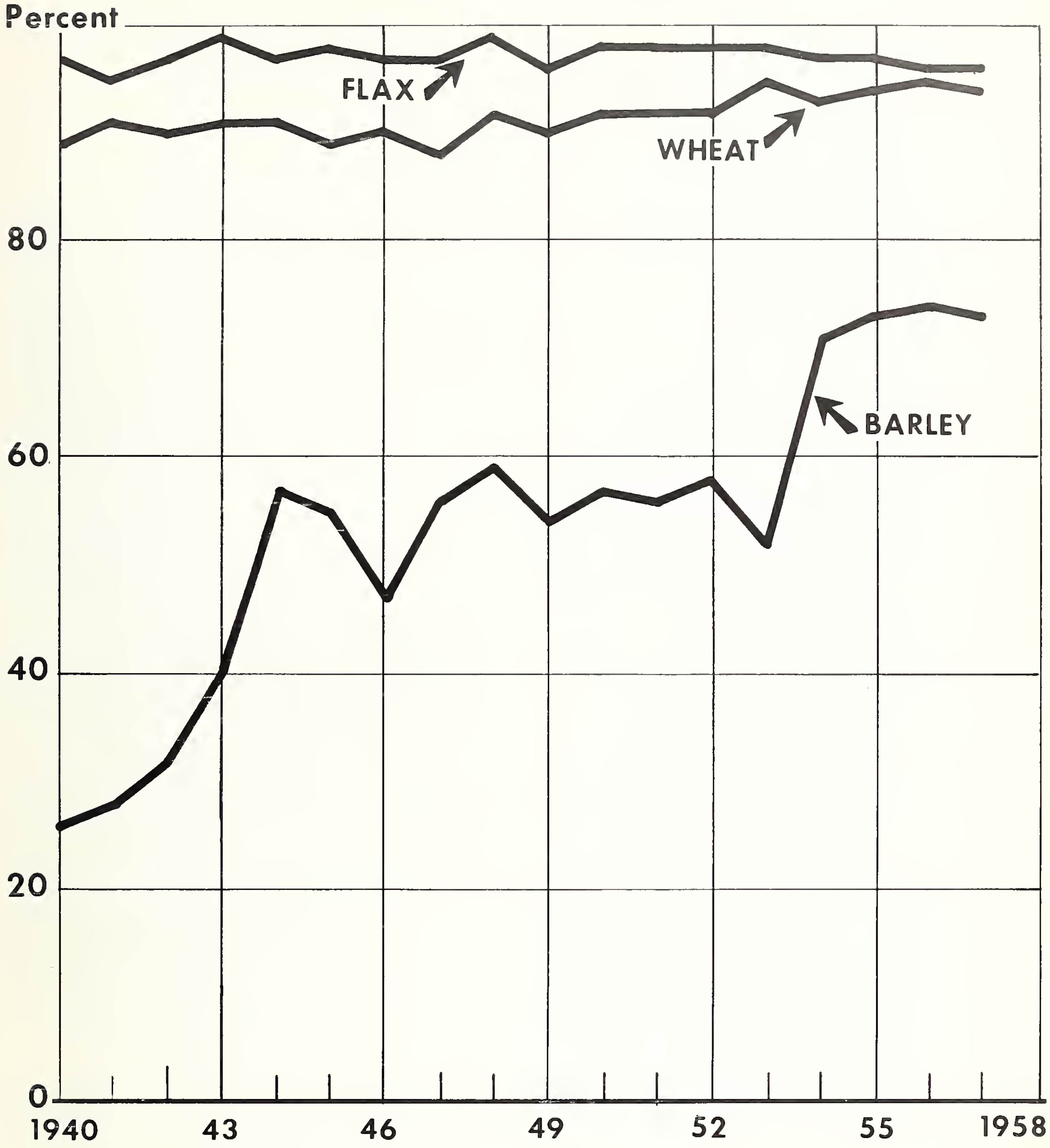
The 48 elevators in this study purchased approximately 20.5 million bushels of this grain at an estimated value of $30.5 million from 9,438 farmers.

For the elevators included in this study, the bulk rated storage capacity was determined and each elevator was put in one of the following groups:

Bulk rated storage capacity	Number of elevators in each group
Under 100,000 bushels	18
101,000 - 150,000 bushels	14
151,000 - 200,000 bushels	9
Over 200,000 bushels	7

Figure 1

Percentage of Specific Crops Sold Off-Farm, Montana, 1940-57



Characteristics of Country Elevators

Approximately 96 percent of the storage capacity erected before 1941 was wooden cribbed structures. Since 1941 approximately 63 percent of the storage capacity built has been wooden cribbed, 29 percent steel, and 8 percent concrete. In the past two decades, development of trucks, improved roads, and new technology have contributed to the reorganization of the physical facilities of many country grain elevators.

Location

Montana has 415 country grain elevators located largely in the central and eastern areas of the State. See figure 2 for the location of the 48 cooperative grain elevators included in this study.

Type of Ownership

The country elevators in Montana were classified as cooperative elevators and other type elevators. In 1956-57, there were 107 cooperatives and 308 other elevators (table 1). The cooperative elevator may be either (1) an independent cooperative--the elevator owned and operated by farmers, (2) a cooperative branch--an elevator operated as a subsidiary of the independent cooperative, or (3) a cooperative line--one of a series of grain elevators owned and operated by a regional cooperative elevator, terminal, or processing plant. This report deals only with the independent cooperative elevators.

Figure 2

Location of 48 Montana Cooperative Elevators Included in the Study

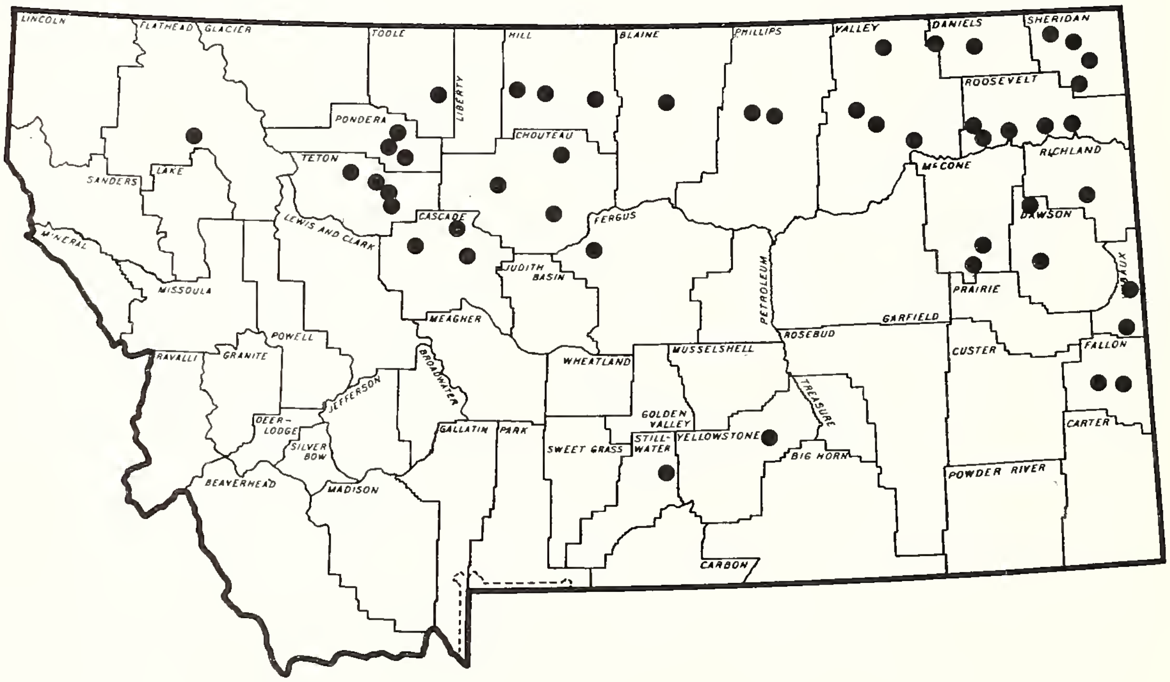


Table 1. - *Number and capacity of Montana grain elevators by type of ownership, 1956-57*

Bulk storage capacity	Cooperative				Other types				Total number	Capacity of all elevators		
	Number	Capacity		Percent	Number	Capacity		Percent				
		Total	Average			Total	Average			Total	Average	Percent
1,000 bushels		*1,000 bushels*				*1,000 bushels*				*1,000 bushels*		
Under 100	63	3,957	62.8	25	244	11,700	48.0	75	307	15,657	51.0	100
101 - 150	26	3,186	122.5	47	30	3,656	121.9	53	56	6,842	122.2	100
151 - 200	9	1,557	173.0	37	15	2,652	176.8	63	24	4,209	175.4	100
Over 200	9	3,540	393.3	29	19	8,728	459.4	71	28	12,268	438.1	100
Total or average	107	12,240	114.4	31	308	26,736	86.8	69	415	38,976	93.9	100

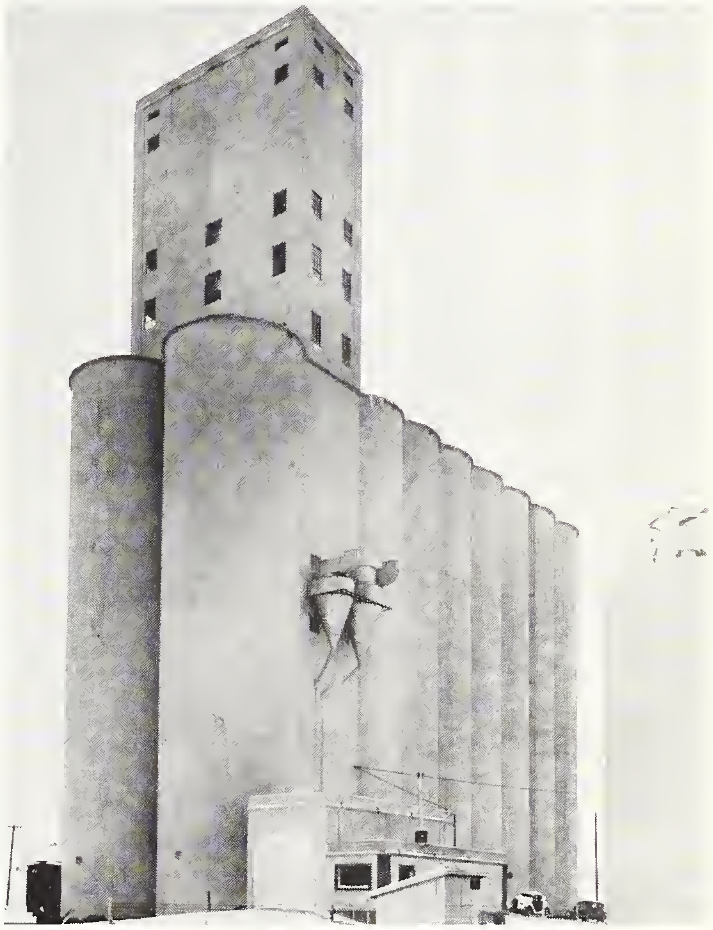
Source: *Montana Directory of Grain Dealers and Public Warehousemen, License Year 1957, Department of Agriculture, State of Montana.*

The other elevators can be classified as: (1) independent--the elevator owned and operated by individual grain men who provide their own capital, (2) independent branch--the elevator operated by individuals as a subsidiary of an independent, or (3) independent line--one of a series of country elevators operated by an independent terminal or processor or by a company that also operates a terminal elevator or processing plant.

Approximately 31 percent of the country elevators are cooperative and have an estimated storage capacity of approximately 12 1/4 million bushels (table 1). The remaining 69 percent of other elevators have more than 26.7 million bushels of storage. Combined they have a licensed storage capacity of almost 39 million bushels.

Type of Structure

The grain storage structures of country elevators in Montana are concrete, steel, or wood. Composition of the storage facilities of the 48 country elevators surveyed was 80 percent wood,



This modern elevator can serve a larger territory more efficiently than some of the older ones.

14 percent steel, and 6 percent concrete. Each of these structures has advantages and disadvantages.

Wood

Wooden bins have the following advantages: (1) They do not sweat and are slightly better adapted than concrete and steel for storing damp grain; (2) they are vermin proof provided they are clean on the inside and the timbers are well seasoned.

These bins are not fire proof, however, and they are not as durable as concrete or steel.

Flat Storage--Steel or Wood

Flat storage is considerably cheaper to build than other types of storage. In addition to lower costs other advantages include these: (1) The building can be readily adapted to other uses; (2) it doesn't have to be built adjoining a railroad; and (3) aerating equipment can be conveniently installed.

The flat storage structures are not designed to perform all the functions ordinarily performed by grain elevators, however. They have the following disadvantages: (1) Grain cannot be turned except by considerable effort and cost; (2) receiving and loading out operations are generally slower and more costly; (3) shrinkage losses due to quality and quantity losses may be higher; and (4) maintenance and repair costs are likely to be higher.

Steel

These structures are usually made in the form of a cylinder. However, flat storage is now being constructed using steel with a concrete floor. The steel elevator has many advantages. It can be put up easily and rapidly. It is fireproof and vermin proof. It is also low in cost. But steel bins also have disadvantages. They will leak at the seams if not properly constructed, and in some climates they have a tendency to sweat.

Concrete

These structures are well adapted to storing large amounts of grain in bulk. They are made of a network of steel rods embedded in concrete. To prevent dust explosions and breakage of the grain kernels, the walls should be smooth on the inside. The concrete structures also have advantages. They are impervious to weather, fire, and vermin; they may be built in any size and shape, and they are economical to construct for large storage capacities.

The disadvantage of concrete structures is their high initial cost. This is especially true in Montana since much of the gravel, as well as the water, must be imported. The alkali content of the water in many localities causes concrete to crumble.

Facilities

The kind and number of facilities incorporated into the country grain elevator to a considerable degree determine the kind and number of services the elevator can offer its patrons. Marketing trends of the past several years have exerted a strong influence for adding new facilities, both in the building of new and remodeling of old.

Elevators have a wide choice of equipment from which to select. The selection depends upon the geographic location, kind of farming, kind of grain,

Table 2. - *Truck-weighing facilities of 48 Montana cooperative elevators, 1956-57*

Bulk storage capacity	Elevators	Scales	Visible dial	Automatic weight-stamping device
1,000 bushels	*Number*		*Percent*	
Under 100	18	24	73	21
101 - 150	14	17	88	6
151 - 200	9	13	85	31
Over 200	7	11	91	45

processing, storage, and the desired speed of handling the grain.

Scales are used to weigh incoming and outgoing vehicles loaded with grain for sale and purchase by the country elevators and their patrons.

There was a wide variation among the 48 cooperative elevators as to number of scales such as visible dial, automatic weight-stamping device, platform length, and maximum weight capacities (tables 2 and 3). The 48 elevators had an average platform length of 31.5 feet with an average maximum weigh capacity of 24.5 tons.

Scales more recently installed by newer elevators in Montana had a platform of 50 feet and maximum weighing capacity of 50 tons with visible dial and automatic weight stamping device.

Equipment common to most of Montana country grain elevators included elevator legs, dumps, cleaners, truck lifts, manlifts, automatic shipping scales, treaters, and dust collectors (table 4).

The leg capacity of the 48 Montana elevators varied from 1,785 bushels an hour for those having a bulk storage capacity under 100,000 bushels to 2,404 bushels an hour for those having over 200,000 bushels bulk storage capacity. The goal for the newer elevators being constructed is to receive one truckload

Table 3. - *Scale length and weight capacities of 48 Montana cooperative grain elevators, 1956-57*

Bulk storage capacity	Length in feet				Maximum tons			
	Under 20	20-29	30-39	40 and over	Under 20	20-29	30-39	40 and over
1,000 bushels	*Number*							
Under 100	2	8	11	3	5	11	8	0
101 - 150	0	4	5	8	2	4	8	3
151 - 200	0	8	2	3	2	8	0	3
Over 200	1	5	3	2	2	5	4	0
Total	3	25	21	16	11	28	20	6
Percent	5	38	32	25	17	43	31	9

Table 4. - *Average number and capacity of selected equipment of 48 cooperative elevators, Montana, 1956-57*

Bulk storage capacity	Legs	Rated leg capacity	Dumps	Cleaners	Rated cleaning capacity	Truck air lifts	Man lifts	Automatic shipping scales	Rated automatic scale capacity	Treaters	Rated capacity of treaters	Dust collectors[1]
1,000 bushels	*Number*	*Bushels per hour*	*Number*	*Number*	*Bushels per hour*	*Number*	*Number*	*Number*	*Bushels*	*Number*	*Bushels*	*Number*
Under 100	2.3	1,785	1.5	1.1	475	1.7	1.6	1.2	9.6	[2]0.8	346	0.8
101 - 150	2.7	2,111	1.3	1.3	456	1.4	1.5	1.1	8.7	1.1	310	.6
151 - 200	3.0	2,303	1.6	1.6	514	1.8	1.6	1.2	10.0	1.1	360	.8
Over 200	3.9	2,404	2.4	2.4	736	2.4	2.1	1.7	9.8	2.0	289	.6

[1] Fifteen elevators did not have dust collectors.
[2] Six elevators did not have treaters at time this study was made.

(about 250 bushels) every 7 minutes, or approximately 40,000 bushels of grain a day. This would require two 2,500-bushel-per-hour legs and two grain dumps.

Dust from grain is a hazard in all grain elevators. In 1956-57, 31 percent of the elevators studied did not have a dust collector. However, many indicated that a dust collection system was needed.

Grain Receipts

The kind and amount of grain received by a country elevator depends upon the size of trade area, soil, topography, yield per acre, production, percent sold off-farm, and competition from surrounding elevators. The country elevators in the study received their grain from within an average radius of 20 miles (table 5).

Table 5. - *Trade territory of 48 Montana cooperative grain elevators, 1956-57*

Bulk storage capacity	Weighted average radius
1,000 bushels	*Miles*
Under 100	17
101 - 150	22
151 - 200	22
Over 200	23
Average	20

Marketing Period

The period of low prices for grain usually comes in the peak period of harvest. In Montana, the lowest price for grain usually occurs during August and September. Since Montana is among the last of the States in the Nation to harvest grain, the available storage space at the terminal elevators[2] is usually limited. Consequently, farmers store much of the grain on the farm where grown and later haul it to the country elevator.

The peak marketing period in 1956-57 for grain stored on farms occurred during January (figures 3 and 4). Of the

---

[2] Farmers Union Grain Terminal Association, Great Falls, Montana, merchandises much of the grain for Montana cooperative country elevators.

Figure 3

Purchases and Sales of Specific Crops by Montana Cooperative Elevators, 1956-57

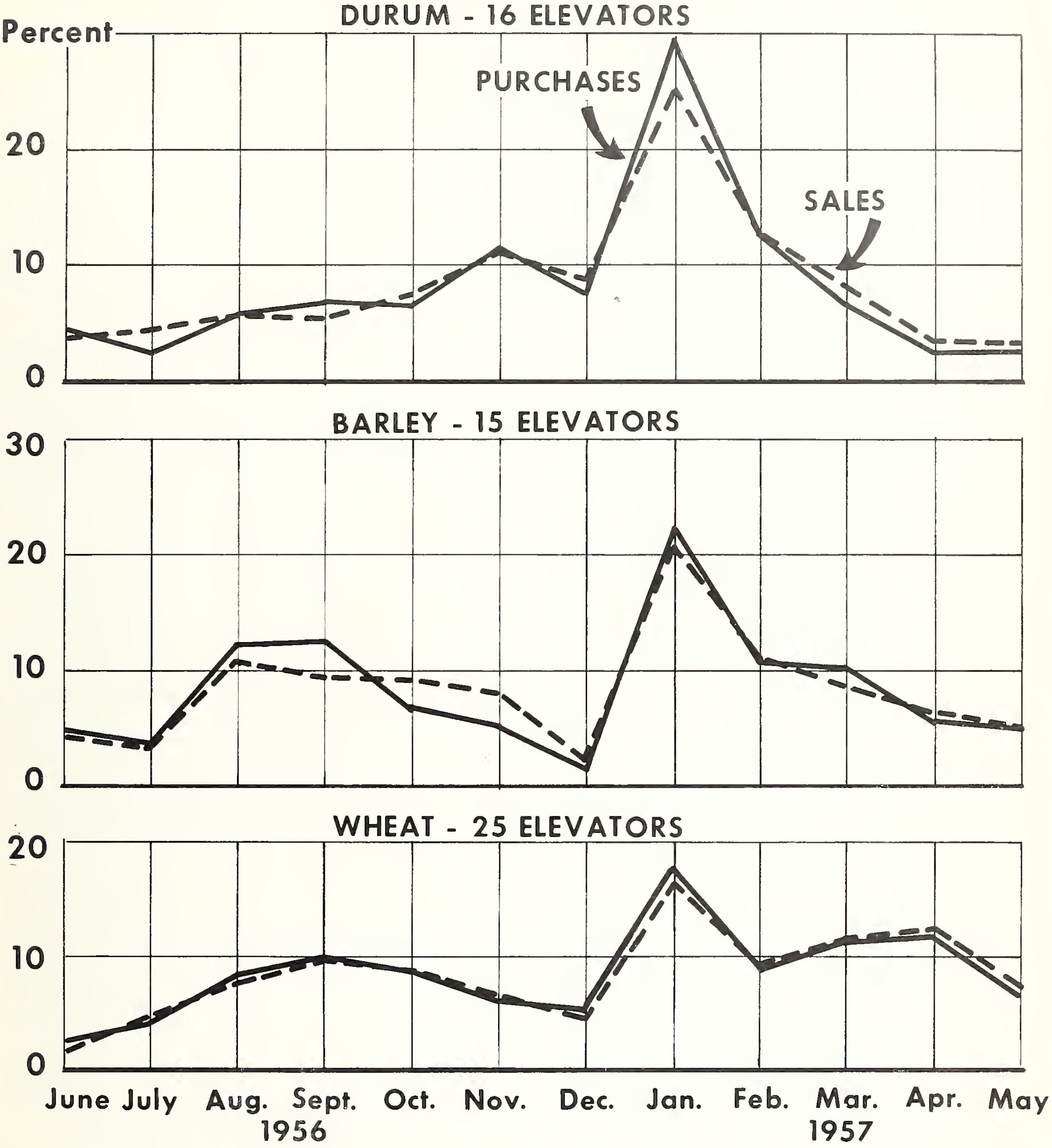
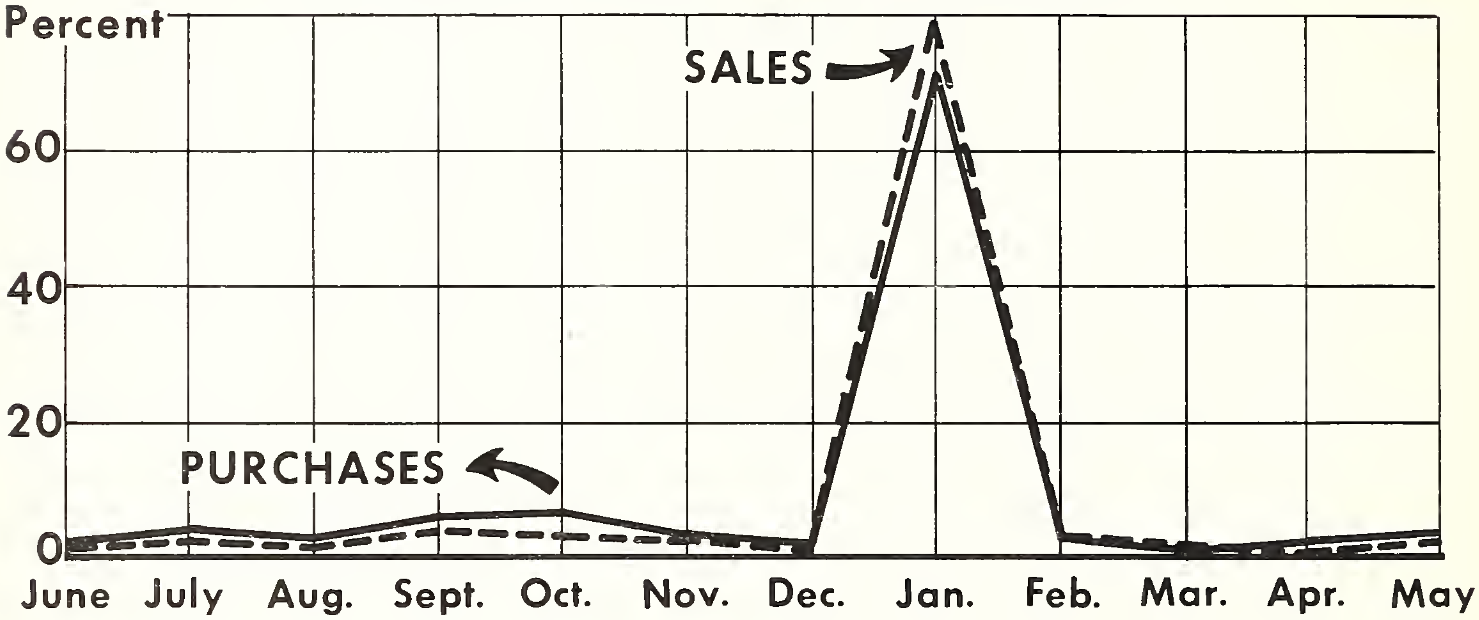


Figure 4

Purchases and Sales of Flaxseed by Three Montana Cooperative Elevators, 1956-57



48 elevators studied, most shipped the grain received from farmers during the same month that it was purchased.

A reason for the peak movement of grain during January and February was the usually higher price for grain in the long run in those months. Other factors considered were the interest, taxes, and other bills that came due and forced the farmer to dispose of his crop.

Fluctuating production and prices (figure 5) have led many producers to store some of the crop on the farm to be sold at a later date.

Transportation Used

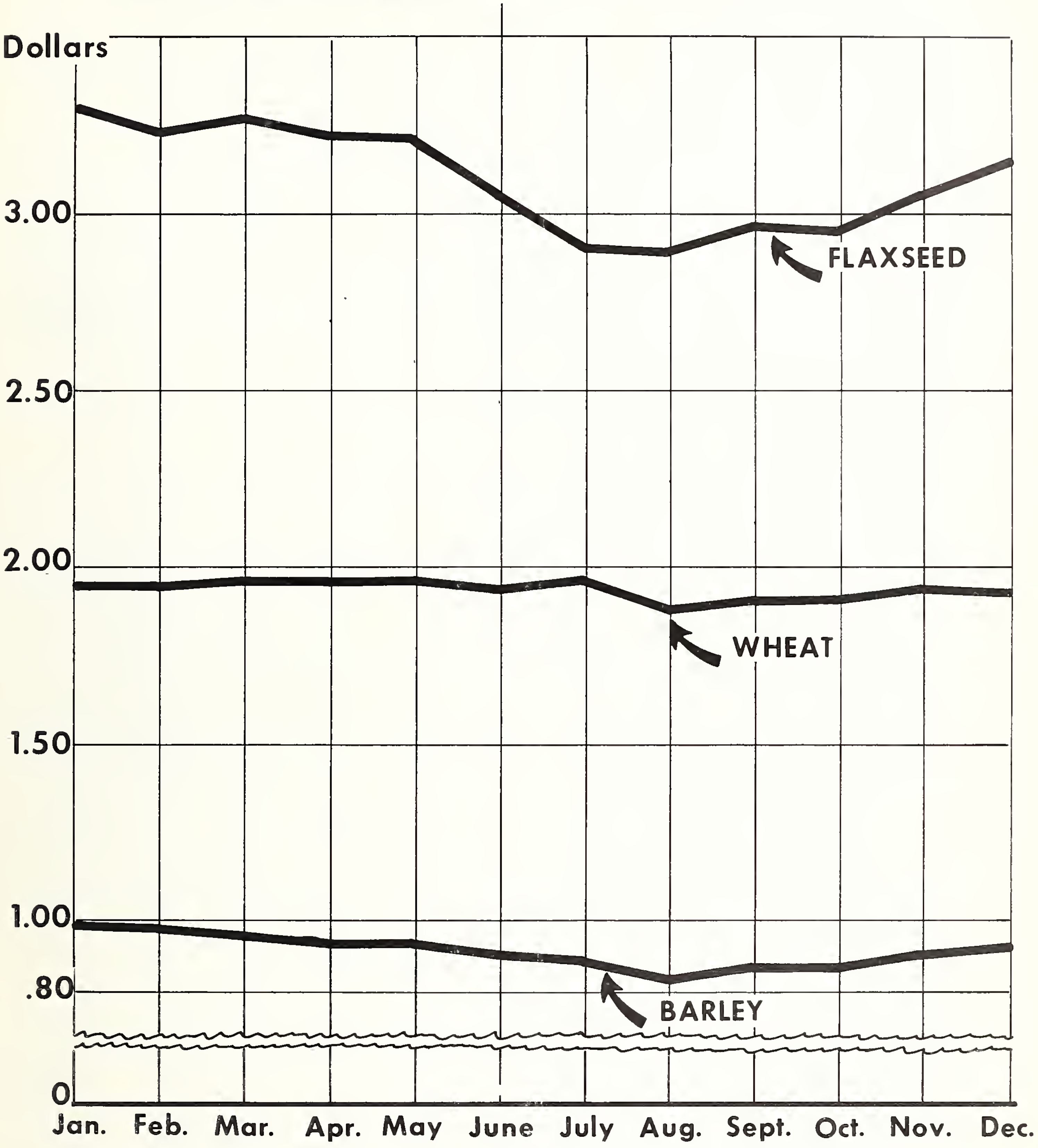
During the period when the grain marketing system was developed, the railroad was the only method of transporting as bulky a commodity as grain over long distances. As a result, country elevators were built on railroad lines to avail themselves of a market outlet at all times of the year for the grain handled.

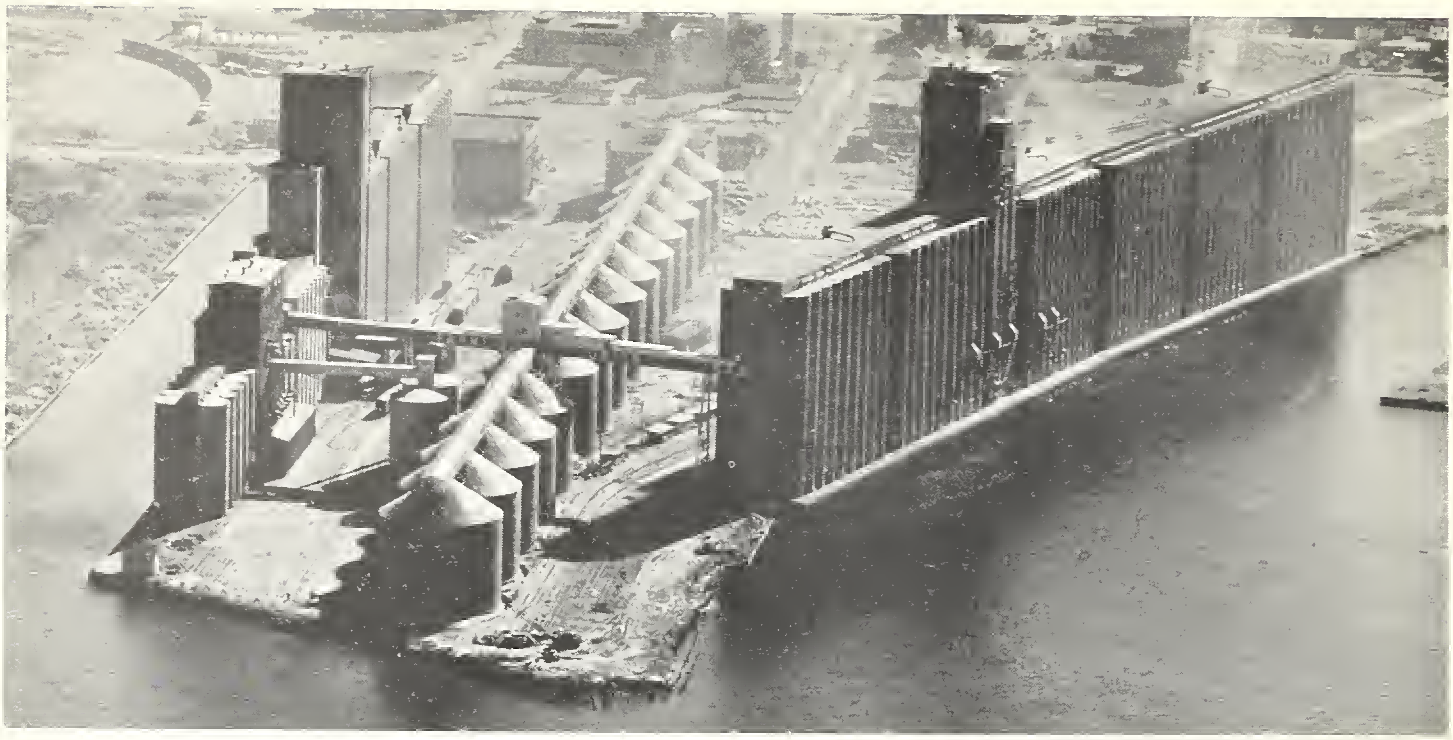
In 1956-57, approximately 97 percent of the grain shipped by the elevators in the study went by rail.

Trucking of grain in Montana is increasing in importance each year, however. Several reasons for increased trucking of grain are improved roads, better trucks, lower rates, and the relatively inadequate rail service and lack of boxcars for many of the small country grain elevators. Revised rail rate schedules may change this trend.

Figure 5

Eight-Year Average Mid-Month Price Per Bushel Received by Montana Farmers, 1950-57





Farmers Union Grain Terminal Association, with headquarters at St. Paul, Minn., handles grain from many cooperative elevators in Montana.

Grain Storage

The total storage capacity of a country grain elevator includes the available storage capacity plus the required working capacity needed to condition grain and carry on sideline services.

The most important use of storage capacity made during harvest is the receiving and holding of grain until it can be determined whether it will be shipped or stored. After the harvest season, this capacity is used to store grain for processors, terminal elevators, farmers, the elevator's own grain, and Commodity Credit Corporation.

In 1956-57, the total capacity of the elevators in the study was more than 6.6 million bushels (table 6). Over 1.4 million bushels were reserved for

Table 6. - *Total bulk capacity available for storage and working capacity of 48 Montana cooperative elevators, 1956-57*

Bulk storage capacity	Elevators	Total capacity			Average capacity		
		Bulk	Available	Working	Bulk	Available	Working
1,000 bushels	*Number*		*1,000 bushels*			*1,000 bushels*	
Under 100	18	1,344	1,023	321	74.6	56.8	17.8
101 - 150	14	1,737	1,355	382	124.1	96.8	27.3
151 - 200	9	1,527	1,150	377	169.7	127.8	41.9
Over 200	7	2,010	1,670	340	287.1	238.6	48.5
Total	48	6,618	5,198	1,420	137.9	108.3	29.6

working space -- receiving, turning, blending, shipping, and sideline service. More than 5 million bushels of available storage capacity was available to care for the purchases of some 20.5 million bushels of wheat, durum, barley, and flax. These data would indicate that the available storage space is used to store more than one type of grain during the year.

Since grain harvesting is seasonal much of the annual production must be stored at one time during the year. Storing grain in Montana is shared by farmers, local country elevators, processors, dealers, terminal elevators, and Government-owned facilities.

How Much Capacity?

The decision as to how much storage capacity to build in a specific location is difficult to determine. The starting point in building future elevator capacity is a look at past production, yield per acre, topography, soil, climate, competitors, type of crops, farming enterprises, and present trends predominating in the area. Since the physical factors can not easily be altered, an elevator must be prepared to adapt its business to the surrounding area.

Figure 6 reflects trends in production of flax, wheat, and barley in Montana from 1940 to 1957. Some instability in crop production can be attributed to weather conditions and acreage restrictions of various crops.

In the past, the country elevators built storage in anticipation of receiving grain crops over a period of several months. With the introduction of the combine, new varieties of grains, and other innovations, the country elevator now receives most of its grain within a few weeks. This has left Montana country elevators lacking in sufficient capacity for storing small grains. As a result of low storage capacities of country elevators, the Government loan program, shortage of rail cars during harvest, and the like, an estimated 161 million bushels of on-the-farm storage has been built.

Conditions Affecting Storage

The need for grain storage at harvest time in any one year is the total bushels of the current year's crop plus on-the-farm carryover plus stocks of grain outstanding in storage from the previous year. Since storage capacity of Montana elevators is low, this increases the burden of putting small grains in storage during bumper crops and carryover.

In 1956-57, grain storage capacity exceeded small grain production. However, part of the farm and commercial storage capacity was occupied by stocks of grains carried over from the previous year. Bins partially filled with one kind of grain could not be utilized for other grain. Storage in some locations was sufficient but in other areas was lacking.

Advantage of Commercial Storage

Production of grain on individual farms varies from year to year. Usually the variation on farms is greater than the variation in the community. Variations from year to year in a community are greater than for the whole State. Usually a year of high production for one area is accompanied by low production elsewhere in the State. If facilities are centrally located and convenient to all areas, they will not have to be as large as those located in each area or

Figure 6

Production of Wheat, Barley, and Flax in Montana, 1940-57

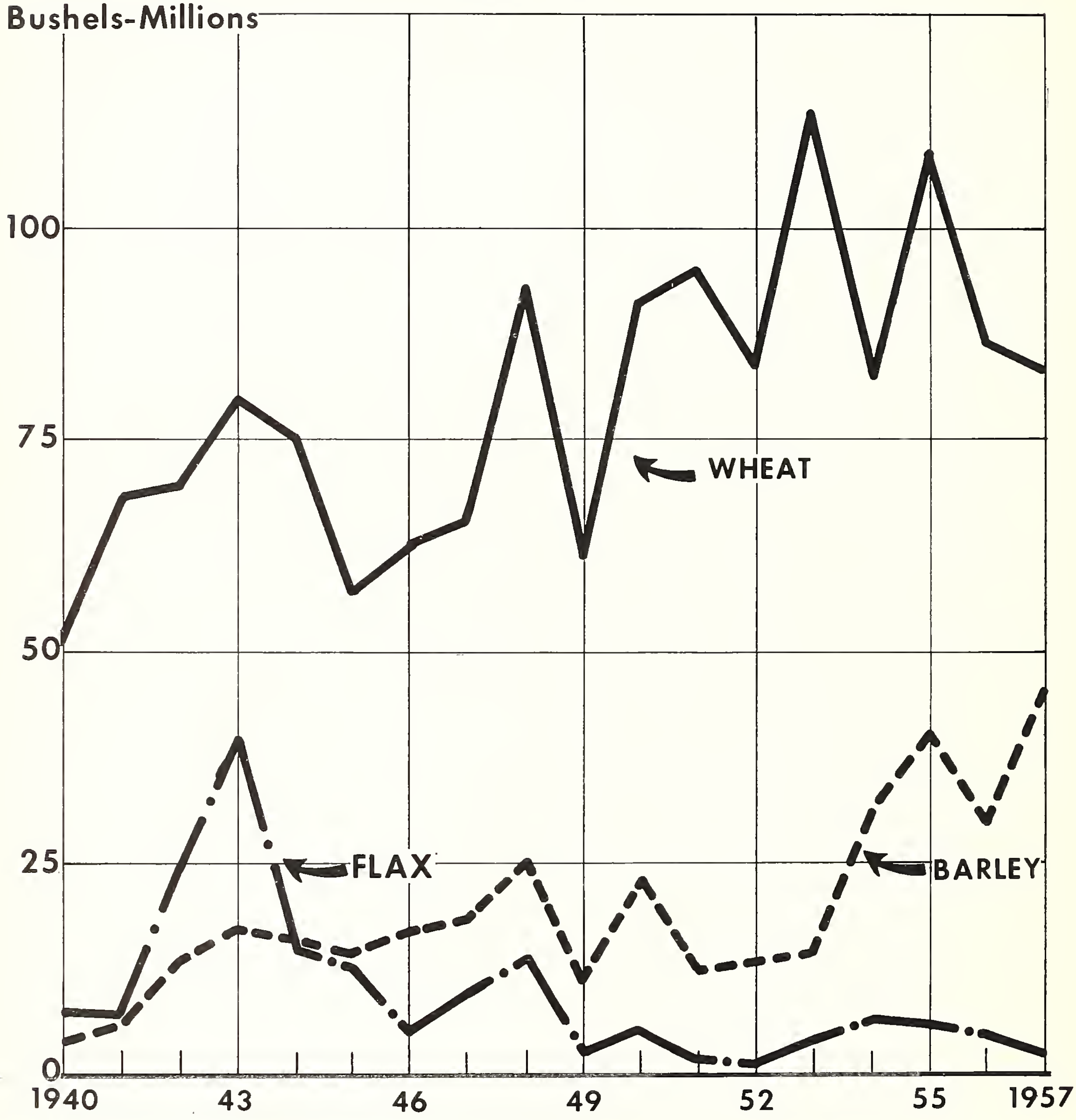


Table 7. - *Percent of purchased grain held in cooperative grain elevators for specified period, Montana, 1956-57*

Type grain	Elevators reporting	Period held in elevator				
		Under 1 week	1 week to 1 month	1 to 3 months	3 to 6 months	6 to 12 months
	Number		*Percent of grain*			
Wheat	39	48	39	13	(1)	0
Barley	16	45	29	17	7	2
Durum	17	34	47	19	0	0
Flaxseed	2	33	4	0	16	47

[1] Less than one-half of one percent.

on each farm to handle maximum production.

Therefore, if the larger commercial storage facilities were located convenient to a large area, the storage capacity of those elevators could handle a maximum quantity of grain and provide more services at a smaller unit cost.[3]

Length of Storage

The length of time purchased grain was stored by Montana country elevators varied by type of grain from less than 1 week to 12 months. In 1956-57, approximately 48 percent of the wheat, 45 percent of the barley, 34 percent of the durum, and 33 percent of the flaxseed was shipped in less than a week (table 7).

Turnover

A measure of the use made of elevator storage and equipment is the capacity turnover. Turnover means the number of times available storage capacity is filled, emptied, and refilled during the year. Turnover for the grain purchased by the elevators studied ranged from 2.9 for those with a bulk rated capacity over 200,000 bushels to 6.07 for those with a bulk capacity of 101,000 to 150,000 bushels (table 8).

Rates Paid

The rates that farmers pay Montana country elevators for storage are fixed

---

[3] Montana Agricultural Experiment Station. Economic Aspects of Grain Storage in the Northern Great Plains, Montana Agr. Exp. Sta. Bul. 523, 1956, pp. 30, 31.

Table 8. - *Available storage, total purchases, and grain turnover, 48 Montana cooperative elevators, 1956-57*

Bulk storage capacity	Available storage	Total purchases	Turnover
	1,000 bushels		*Times*
Under 100	1,023	3,345	3.27
101 - 150	1,355	8,220	6.07
151 - 200	1,150	4,138	3.60
Over 200	1,670	4,840	2.90
Total	5,198	20,543	3.95

by law. The rates in effect at the time of this survey for the principal grains were 4 cents a bushel for weighing, receiving, elevating, grading, and insuring for 15 days--except for flax, which was 5 cents. There was no charge for storage for the first 15 days. The charge for storage after 15 days was at the rate of one-thirtieth of 1 cent per bushel per day.

Shrinkage

The amount of shrinkage in handling and storing grain varied among elevators. In 1956-57, the 48 managers of the elevators in this study indicated an average shrinkage of 0.69 percent a bushel for grain handled, and 0.77 percent a bushel for stored grain (table 9).

Table 9. - *Percent shrinkage of grain reported by 48 Montana cooperative elevators, 1956-57*

Bulk storage capacity	Shrinkage	
	Handled grain	Stored grain
1,000 bushels	*Percent*	
Under 100	0.72	0.73
101 - 150	.73	.74
151 - 200	.75	.93
Over 200	.46	.67
Average	.69	.77

Government Loan Programs

The U. S. Government loan program has had some effects upon the storage of grain. They are as follows: (1) It is a source of added income for country elevators, (2) Government grain has tied up storage capacity, making it difficult to take care of the new crop, (3) wheat stored for the Government must be segregated by grade and protein content in order to fulfill the Government contract, and (4) more on-the-farm and commercial storage has been constructed.

Elevator Services

The country grain elevator is the farmer's market for grain. A well-managed elevator will provide fast and reliable market and price information needed by the farmers. The better the elevator is managed the better the market and price the elevator can offer its patrons.

In Montana, the country elevator performs many functions. They can be divided into (1) grain services and (2) sidelines such as cleaning and treating grain, mixing feed, and selling various items.

Grain Services

The elevator supplies a cash market for grain throughout the year. It weighs, receives, elevates, processes, and stores grain. It grades grain with some degree of accuracy. And it furnishes market information to the producer.

Sidelines

The country elevator often handles a wide variety of supplies used by farmers. The kinds and amounts have been increasing in recent years. All but two of the 48 country grain elevators made available to their patrons in varying degrees services other than grain handling and marketing.

In 1956-57, the sideline sales per elevator for the 46 elevators handling sidelines varied from $38,934 to $250,000. Petroleum products handled by 16 elevators ranked first in volume of sales with an average dollar value of $120,098 (table 10). General merchandise[4] ranked second in volume of sales with an average dollar value of $25,456. More country grain elevators handled feed than any other single item. A few of the country grain elevators handled twine, lumber, sprays, and farm machinery. One elevator was operated in conjunction with a creamery doing an estimated million-dollar business, and a farm machinery agency doing an annual business of $100,000.

This is a typical wooden, cribbed, country elevator.

Table 10. - *Major composition of sideline sales of 48 Montana cooperative elevators, 1956-57*

Sideline sales	Number of elevators	Average volume of sideline sales
Feed	32	$20,817
General merchandise[1]	31	25,456
Cleaning and treating	26	3,783
Coal	20	2,249
Seed	17	7,356
Petroleum products	16	120,098
Fertilizer	16	8,441

[1] Includes such items as hardware, tubes, tires, and batteries.

Forty-two of the elevators cleaned an average of 30,690 bushels of grain in 1956-57 and treated 30,250 bushels of seed. Eleven mixed an average of 710 tons of feed.

The sidelines commonly carried on by country elevators fit well into their grain operations. As a result, they generally use labor more efficiently the year round. The greater stability of employment results in better employees as well as better relationship with the patrons.

---

[4] Includes such items as hardware, tubes, tires, and batteries.

Combines have made elevator modernization necessary in order to care for increased volume of grain coming to the elevator in a short period.

Employees

In the actual operations of a country elevator the manager is the center around which the functions of the elevator revolve. Selection of the manager is one of the most important responsibilities of elevator owners.

In 1956-57, 17 percent of the 48 elevators had 1 employee, 52 percent employed 2 people, 10 percent employed 3 people, 15 percent employed 4 persons, and 6 percent employed 5 or more (table 11).

Table 11. - *Distribution of elevators with various numbers of employees, Montana, 1956-57*

Bulk storage capacity	Employees				
	One	Two	Three	Four	Five or more
1,000 bushels			*Percent*		
Under 100	33	39	17	11	0
101 - 150	14	72	7	0	7
151 - 200	0	56	0	44	0
Over 200	0	43	14	14	29
Percent	17	52	10	15	6

Table 12. - *Number of elevators with specified types of employees, 48 cooperative elevators, Montana, 1956-57*

Bulk storage capacity	Manager	Assistant manager	Truck driver	Elevator man	Bookkeeper	Service station man
1,000 bushels			*Number of elevators*			
Under 100	18	8	5	5	0	2
101 - 150	14	7	1	7	0	0
151 - 200	9	7	3	2	3	2
Over 200	7	5	2	8	4	3
Total	48	27	11	22	7	7
Percent	100	56	23	46	15	15

Of the 48 grain elevators studied, approximately 56 percent employed assistant managers; 23 percent, truck drivers; 46 percent, elevator men; 15 percent, bookkeepers; and 15 percent, service station attendants fulltime (table 12). The average number of employees increased as volume of grain handled, sideline services, and bulk storage capacity increased.

The usual duties of the bookkeeper were commonly handled by the manager or assistant until the bulk rated capacity reached 150,000 bushels. Elevators with a larger bulk storage capacity generally had a bookkeeper. However, many managers and assistant managers still performed part of the bookkeeping duties. The elevator men usually handled the elevator duties as well as the sideline services, often with the help of the manager, assistant manager, and truck driver.

Managers

About 54 percent of the managers were between 30 and 44 years old, 27 percent between 45 and 59, 8 percent over 60, and 11 percent were less than 30 years old (table 13).

Table 13. - *Age of managers of 48 cooperative elevators, Montana, 1956-57*

Bulk storage capacity	Years				
	Less than 30	30 to 44	45 to 59	60 and over	Average age
1,000 bushels			*Percent*		
Under 100	11	50	33	6	43
101 - 150	7	72	7	14	41
151 - 200	22	22	45	11	44
Over 200	0	71	29	0	43
Average	11	54	27	8	42

Table 14. - *Years as manager of present cooperative grain elevator, Montana, 1956-57*

Bulk storage capacity	Experience: Less than 5 years	Experience: 5 to 9 years	Experience: 10 or more years	Average number of years as manager
1,000 bushels		*Percent*		
Under 100	44	17	39	8
101 - 150	42	29	29	7
151 - 200	33	33	33	8
Over 200	57	29	14	5
Average	44	25	31	7

More than two-fifths of the managers had been in charge of their present grain elevator less than 5 years, and one-fourth between 5 and 9 years. In 1956-57, the 48 managers of the elevators in the study had managed their present elevators an average of 7 years (table 14).

Managers, besides being technically expert in handling grain, must be skillful as salesmen since they are successful only as they obtain the highest possible price in their competitive business.

Salaries

The salaries of the managers varied from a low of $3,000 to a maximum of $10,150. Many managers of grain elevators with a low bulk rated storage capacity performed the multiple functions of manager, laborer, and office worker. The smaller the bulk rated storage capacity of the elevator, the lower the salary and the smaller the proportion of the manager's time spent on management functions. Several managers were furnished a house and paid a bonus at the end of the year (table 15).

Table 15. - *Managers' salaries in 48 cooperative elevators, Montana, 1956-57*

Salaries	Managers	Managers furnished a house[1]	Managers receiving a bonus[2]	Managers receiving bonus and house[3]
		Number		
Under $4,000	4	2	1	0
4,001 - 5,000	11	3	2	0
5,001 - 6,000	18	4	5	5
6,001 - 7,000	7	4	1	1
7,001 - 8,000	3	-	2	1
Over 8,001	5	-	3	1

[1] Salaries of individuals include $600 a year for use of house.
[2] Salaries of individuals were increased by the amount of bonus paid.
[3] Adjustments were made for house and bonus.

Bibliography

Bell, E. J., Jr.
1930. Current Problems of Montana Farmers' Elevators, Mont. Agr. Expt. Sta. Bul. 226.

Hall, Thomas E.; Davis, Walter K.; and Hall, Howard L.
1955. Cost-Volume Relations in the Hard Winter Wheat Belt. FCS Service Report 12. Farmer Cooperative Service, U. S. Dept. of Agr.

Harston, Clive R.
1957. Marketing High Protein Wheat in the Northern Great Plains. Mont. Agr. Expt. Sta. Bul. 527.

Kelley, P. L., et al.
1956. Resources Returns and Productivity Coefficients in the Kansas Cooperative Grain Elevator Industry. Kans. Agr. Expt. Sta. Tech. Bul. 84.

Post, R. E.
1933. Farmers' Elevators in Spring Wheat Area of South Dakota Business Operations, 1921-22 to 1930-31, S. Dak. Agr. Expt. Sta. Bul. 282.

Ratcliffe, Harry E., Hamphill, Perry V., and Hollands, Harold F.
1941. Cooperative Grain Elevators in North Dakota and Eastern Montana. Farm Credit Administration, U. S. Dept. of Agr. Bul. 43.

Sorenson, Orlo L., Thurston, Stanley K.
1958. Wheat Storage: A Study of Conditioning and Quality Maintenance Practices and Costs at Kansas Local Elevators, Kans. Agr. Expt. Sta. Bul. 399.

Taylor, James W., and Clifton, Ruth C.
1959. Shrinkage and Grade of Wheat Stored in Country Elevators in Kansas, AMS 291, Agricultural Marketing Service, U. S. Dept. of Agr.

Thompson, L. S.
1955. Economics of Grain Storage on Montana Farms. Mont. Agr. Expt. Sta. Tech. Bul. 511.

Thompson, L. S.
1956. Economic Aspects of Grain Storage in the Northern Great Plains. Mont. Agr. Expt. Sta. Bul. 523.

Thurston, Stanley K., and Mutti, R. L.
1957. Cost-Volume Relationship for New Country Elevators in the Corn Belt. FCS Service Report 32. Farmer Cooperative Service, U. S. Dept. of Agr.

Other Publications Available

New Country Elevators -- Influence of Size and Volume on Operating Costs, FCS Circular 10. Thomas E. Hall.

Using Your Co-op Elevator, FCS Educational Circular 8.

Factors Affecting Margins and Costs in Marketing Kansas Grain, Bulletin 66. Edward B. Ballow.

Changing Grain Storage Costs, Farm vs. Elevator, FCS Circular 6. Thomas E. Hall.

Organization Structure of Farmers' Elevators, Circular C-115. Harold Hedges.